

**DE PLANTIS TOXICARIIS E
MUNDO NOVO TROPICALE
COMMENTATIONES XXXII**

**NOTES, PRIMARILY OF FIELD TESTS
AND NATIVE NOMENCLATURE, ON
BIODYNAMIC PLANTS OF THE
NORTHWEST AMAZON**

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Field work to salvage ethnobotanical knowledge in the northwest Amazon has not been commensurable with the rapidity of the disappearance of this folklore as a result of growing acculturation. Many native languages of the region are becoming extinct, and the natives, knowing no Spanish names for their plants, are losing even their acquaintance with the local flora. This paper, a continuation of numerous ethnobotanical contributions on the plants of the northwest Amazon, offers a number of native names of plants of this rich flora.

During several of my trips to the Amazon area, spot field tests were made on plants for alkaloids. Most of these plants have never been chemically studied; in fact, many of the genera and even families of these plants are phytochemically unknown. While spot tests, especially those conducted under field conditions, are initial, exploratory and often crudely carried out, they do offer—especially with the paucity of phytochemical knowledge of such a rich, yet poorly known, flora—leads which may be of help to investigators interested in the chemical constituents of plants and their possible biodynamic significance.

The voucher specimens cited below are preserved in one or more of the following institutions: the Economic Herbarium of Oakes Ames or the Gray Herbarium, both of Harvard University; in the Herbario Nacional de Colombia in Bogotá; or in the New York Botanical Garden.

To several of my colleagues who have made available data, I express my deep appreciation: Professor Robert F. Raffauf, Mr. Melvin Shemluck and Dr. James L. Zarucchi.

The families are arranged in accord with the Engler-Prantl system, and the genera are listed alphabetically under the families.

POLYPODIACEAE

Polypodium glaucophyllum *Klotzsch* in *Linnaea* 20: (1847) 393.

ECUADOR: Provincia Pastaza, Río Chicó, village of Río Chicó and vicinity. August 1979. *Shemluck et Nees* 203.

According to the collectors, this scandent fern was used formerly when there was no salt; the leaves are very sweet and are employed to flavour monkey meat. The plant is also valued medicinally, used "when sick so blood does not dry up." The Kechwa name is *catchi-panga*.

PALMAE

Mauritiella cataractarum *Dugand* in *Rev. Acad. Col. Cienc.* 8 (1951) 385.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Soratama. "In clumps, 5-10 together. Stems devoid of spines. Fruit ripens brown, smaller than usual species." June 21, 1951. *Schultes et Cabrera* 12792.

An oil boiled from the ripe fruits is employed to relieve pain from sprains: it is rubbed warm on the affected muscle. The Puinave name is *kee*. The Kuripako Indians call the tree *ka-da-na'-ree-pe*.

It is probable that the oil from the fruits of other species of *Mauritiella* as well as those of *Mauritia* are similarly used.

COMMELINACEAE

Geogenanthus ciliatus *Brückner* in *Notizbl.* 11 (1931) 224.

ECUADOR: Provincia de Pastaza, Río Chicó, village of Río Chicó. August 1979. *Shemluck et Ness* 166.

The Kechwa name of this plant is *supi-panga*. According to the collectors, the leaf is patted on the buttocks of one suffering from flatulence.

MARANTACEAE

Calathea altissima (*P. et E.*) *Koernicke* in Bull. Soc. Nat. Mosc. 35, pt. 1 (1862) 141.

COLOMBIA: Comisaría del Amazonas, Río Apaporis, Soratama. "Flower cream-coloured." December 14, 1951. *Schultes et Cabrera* 14909.

The Karapana Indians of the Río Kananarí crush the leaves of this abundant plant to make a poultice for drying up festering sores.

Calathea cyclophora *Baker* in Kew Bull. (1895) 18.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Cachivera de Tatú. *Schultes, Raffauf et Soejarto* 24372. — Río Kuduyarí, Yapobodá. June 25, 1958. *García-Barriga, Schultes et Blohm* 15868.

A decoction of the underground parts of this plant is given orally to counteract effects from snake bite.

Calathea Veitchiana *Hooker fil.*, Bot. Mag. 91 (1865) t. 5535.

PERU: Departamento de Loreto, Río Nanay, Chiriara. "Herb 1.2 m. tall in forest. Leaf dark green above with light green markings along midrib and margin; reddish purple beneath; pulvinus pale greenish brown. Peduncle reddish; floral bract pale green above, red beneath. Flowers white." February 28, 1969. *Plowman et Tina* 2572.

The name of this plant in Peru is reported to be *pulma*. According to the collectors, it is "mixed with ayahuasca [*Banisteriopsis*] to see visions."

Ishnosiphon obliquus (*Rudge*) *Koernicke* in Nouv. Mém. Soc. Nat. Mosc. 11 (1859) 341.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, vicinity of Leticia. "Height 12 feet. Nether surface of leaves whitish. Flowers yellow, calyces reddish." August 29–September 12, 1966. *Schultes, Raffauf et Soejarto* 24019.

All parts of this plant are alkaloid-negative with a Dragendorff spot-test.

PIPERACEAE

Peperomia glabella (*Sw.*) *A. Dietrich* var. ***melanostigma*** *Dahlstedt* in Kgl. Sv. Vet. Akad. Handl. 33, pt. 2 (1900) 122.

COLOMBIA: Comisaría del Putumayo. *Schultes et Smith 2059.*

This herb is a presumed remedy for conjunctivitis. In the Colombian Putumayo, it is widely employed in the form of a tea and baths to relieve this most common ailment.

The Spanish name of the plant in the region is *flor de mal*; the Ingano name is *tre-gwen, givinán*.

MORACEAE

Helicostylis scabra (*Machr.*) *C.C. Berg* in *Acta Bot. Néerl.* 18 (1969) 464.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Raudal de Yayacopi. "Enormous tree. Latex white. Fruit green, edible." February 18, 1952. *Schultes et Cabrera 15466.*

The Makuna call this tree *meé-o* and utilize the latex, which they maintain is toxic, in alleviating cases of extreme intestinal parasitism. The latex is said to be bitter and is mixed with warm chicha. Very small doses must be taken.

The Puinaves, who know the tree as *han-shee-má*, do not utilize the latex as a vermifuge but value it as an anti-fungal agent when repeatedly painted and dried on infected parts of the skin.

Helicostylis tomentosa (*P. et E.*) *Rusby* in *Mem. Torr. Bot. Club* 6 (1896) 120.

COLOMBIA: Comisaría del Amazonas, Leticia, November 1948. *Schultes et López 10400j.*

The latex of this tree is considered by Indians of the Leticia area to be toxic when ingested.

Pseudolmedia laevigata *Trécule* in *Ann. Sc. Nat.*, ser. 3, 8 (1847) 129, t. 5.

COLOMBIA: Comisaría del Amazonas, Río Apaporis, Soratama. "Fruit red, soft. Small tree." February 4, 1952. *Schultes et Cabrera 15147.*

A tea made from the young twigs of *Pseudolmedia laevigata* is esteemed by the Indians of the middle Apaporis as an excellent stimulant of the appetite.

PROTEACEAE

Euplassa saxicola (*R. E. Schult.*) *Steiermark* in *Fieldiana Bot.* 28, no. 1 (1951) 217.

Roupala saxicola R.E. Schultes in *Bot. Mus. Leaf.*, Harvard Univ. 13 (1949) 300, t. 33.

COLOMBIA: Comisaría del Vaupés, Río Macaya, Cerro Chiribiquete. "Small tree. Fruit yellow." May 15-16, 1943. *Schultes* 5457.

Amongst the Karijonas of the upper Río Vaupés, the seeds of this small tree are considered to be toxic when ingested.

Panopsis rubescens (*Pohl*) *Pittier*, *Contrib. Fl. Venez.* 22 (1923) 21.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, Soratama. "Small tree. Flowers white." August 16, 1951. *Schultes et Cabrera* 13543.

The leaves and stems of this tree are considered to be "medicinal" by Indians of the middle Apaporis region, but the specific uses were not elucidated; use of the plant, however, is stated to be dangerous, since the plant has the reputation of being toxic. *Panopsis* is reported to be one of the genera of the Proteaceae which accumulates minerals (*Hegnauer, R.: Chemotaxonomie der Pflanzen* 5 (1969) 410).

OLACACEAE

Heisteria Spruceana *Engler* in *Martius, Fl. Bras.* 12, pt. 2 (1872) 15.

COLOMBIA: Comisaría el Vaupés, Río Apaporis, Jinogojé. "Small tree. Fruit yellow. Bracts red." June 20, 1952. *Schultes et Cabrera* 16762.

Amongst the Indians of the Ríos Apaporis and Piraparaná, this small tree is considered to be medicinal. Repeated applications of a warm, strong infusion of the leaves and branches are employed to reduce swelling and pain from sprains of the knees, ankles and wrists.

In the Makuna language, the plant is called *he-tá-soo-tee*; in Puinave, *choo-he-oó-it* and *kön-pep* ("tree of the corocoro bird"); and in Tanimuka, *wy-ee-na-gó*.

BALANOPHORACEAE

Helosis cayennensis (Sw.) Sprengel, Supl. 3 (1826) 765.

COLOMBIA: Comisaría del Amazonas, Río Loretoyacu. November 1944. *Schultes* 6197. — Same locality, October 1945. *Schultes* 6829. — Río Boiaúassú. October 29, 1946. *Black et Schultes* 46-241. — Comisaría del Vaupés, Río Apaporis, Raudal de Jerijerimo. March 1951. *Schultes et Cabrera* 12091a.

This saprophyte is known in the Leticia area of Colombia as *cajamba*. In the Vaupés of Colombia, the Indians believe that this plant, dried and pulverized, is an excellent styptic.

In the Brazilian Amazon, the juice of the plant is considered to be astringent and styptic (LeCointe: *A Amazônia Brasileira*, Libreria Classica, Belém, Pará 3 (1934) 157.

MENISPERMACEAE

Curarea tecunarium Barneby et Krukoff in Mem. N.Y. Bot. Gard. 2, pt. 22 (1971) 12.

COLOMBIA: Comisaría del Amazonas, Río Loretoyacu, Puerto Nariño, Lago Tarapoto. "Bejuco de unos 6 m. de longitud; tallo aplando con unos 3 cm. de ancho. Hoja de color verde en el haz y blanco en el envez de tamaño regular. Corteza de sabor amargo; nerviación de la hoja en forma saliente." *Díaz* 1136.

This well known ingredient of curare is called *taufe lleida* by the Witoto Indians who, in the vicinity of Lago Tarapoto near the mouth of the Río Loretoyacu, formerly mixed the bark and leaves with other unspecified plants in preparing the poison. In many regions, the species is employed for this purpose with no admixture.

ANNONACEAE

Guatteria Duckeana R.E. Fries in Acta Hort. Berg. 12 (1939) 468.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Cachivera de Tatú. "Tree 45 feet. Flowers green." October 10, 1966. *Schultes, Raffauf et Soejarto* 24377.

All parts of this tree are strongly alkaloid positive with a Dragendorff spot test.

Guatteria dura R.E. Fries in Acta Hort. Berg. 12 (1939) 499.

COLOMBIA: Comisaría del Vaupés, Río Kuduyarí. "Tree 18 feet. Flowers yellow-green cauliflorous." October 10, 1966. *Schultes, Raffauf et Soejarto* 24391.

The bark of this tree is strongly alkaloid-positive with a Dragendorff test; the leaves are slightly positive.

Guatteria modesta *Diels* in *Notizbl.* 9 (1924) 139.

PERU: Departamento de Loreto, Ushpacano, 2 hours from Iquitos. "Tree 10 m., 10 cm. diameter. January 12, 1968. *Tello et Tina* 2037.

This tree is known in the Peruvian Amazon as *carahuasca*. It is the source of a preparation thought to be contraceptive. The collectors' notes state: "Chop up the bark (only bark is used, not the other parts of the plant) and boil it in water for one minute; then take it out from the fire and leave it until it is tepid. Start to drink 1 cup in the morning and another at the evening (it must be prepared about 6 o'clock). This preparation must be drunk during the menstruation, until it finishes. This prevents not to have baby."

Xylopia amazonica *R. E. Fries* in *Acta Horti. Berg.* 12 (1939) 562.

COLOMBIA: Comisaría del Amazonas, Río Apaporis, Soratama. "On highlands. Large tree. Flowers white. September 28, 1951. *Schultes et Cabrera* 14146.

Indians along the Río Apaporis take a tea made of the leaves and stems to induce sleep.

Xylopia aromatica (*Lam.*) *Martius*, *Fl. Bras.* 13, pt. 1 (1841) 43.

COLOMBIA: Comisaría del Amazonas, Leticia. August 17, 1964. *Fernandez-Peréz* 6856. — Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. September 27–October 20, 1966. *Schultes, Raffauf et Soejarto* 24179. — Río Vaupés, Urania. October 12, 1966. *Schultes, Raffauf et Soejarto* 24393.

The Witotos of the Río Igaraparaná value a weak tea of the leaves as a strong diuretic taken to reduce edema of the legs; according to the natives, it must be used with extreme caution. The seeds are dried and kept for use as carminatives by Indians suffering from digestive problems.

The collection *Fernandez-Peréz* 6856 was strongly alkaloid-positive with Dragendorff spot test. *Schultes, Raffauf et Soejarto* 24393, on the other hand, was only slightly positive.

LAURACEAE

Nectandra globosa (*Aubl.*) *Mez* in *Jahrb. Bot. Gard. Berlin* 5 (1889) 415.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, Leticia. "Large tree along shore. Height 80-90 feet, corpulent. Bark smooth, light brown. Flowers white, slightly aromatic." August 29–September 12, 1966. *Schultes, Raffauf et Soejarto 24124*.

The bark of this tree is alkaloid-positive with a Dragendorff reagent spot test; the leaves and twigs are alkaloid negative.

Ocotea opifera *Martius* in Spix et Martius, *Reise Bras.* 3 (1831) 1128.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. "Tree 30 feet tall. Fruit green. Fruits pulverized to mix with coca powder for certain dances." September 27–October 20, 1966. *Schultes, Raffauf et Soejarto 24421*.

The fruits of this tree are pulverized and mixed with coca powder for certain dances to make the effects of the coca "stronger." The leaves are alkaloid negative in a spot test for alkaloids with Dragendorff reagent.

Ocotea simulans *C.K. Allen* in *Mem. N.Y. Bot. Gard.* 10 (1964) 99.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. September 27–October 20, 1966. "Small tree. Flowers yellowish. Leaves and twigs slightly alkaloid-positive." *Schultes, Raffauf et Soejarto 14174*.—Same locality and date. *Schultes, Raffauf et Soejarto 24200*.

The leaves of *Ocotea simulans* are roasted and pounded with coca leaves for certain ceremonies. The reason for using the leaves of this lauraceous plant is said to be that the admixture acquires a more pleasant taste.

The leaves and twigs reacted positively to a spot test for alkaloids with Dragendorff reagent.

CAPPARIDACEAE

Crataeva Benthmii *Eichler* in Martius, *Fl. Bras.* 13, pt. 1 (1865) 265.

COLOMBIA: Comisaría del Amazonas, Río Amazonas near mouth of Río Loretoyacu. "Small tree. Flowers basally green; long filaments purple." September 13–15, 1966. *Schultes, Raffauf et Soejarto 24133*.

PERU: Departamento de Loreto, Iquitos region, Moyuy. "Small tree, 5 m. Flowers pale green." July 26, 1966. *Martin et Lau-Cam 1133*.

This tree, locally called *tamara*, is poisonous if taken internally, according to the collectors. In Brazil, however, leaves and roots are said to be employed as a tonic and stomachic, and the juice of the leaves is used externally to relieve rheumatism (LeCointe A.: *Amazônia Brasileira* 3 (1934) 112). The fruit or bark are mixed with water and used to wash the skin for "lobosisso," a plague which makes the skin black.

The leaves and twigs are alkaloid positive with a Dragendorff spot test; the bark is negative.

Crataeva Tapia *Linnaeus*, Sp. Pl. (1753) 444.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, near mouth of Río Loretoyacu. September 13-15, 1966. *Schultes, Raffauf et Soejarto* 24156.

The leaves of *Crataeva Tapia* are said by the Witoto Indians to be in tea form an effective stomachic.

CRASSULACEAE

Bryophyllum pinnatum *Aschers et Schweinfurth*, Ill. Fl. Egypte ex Mem. Inst. Egypt. 2 (1887) 79.

PERU: Departamento de Loreto, Iquitos, Uchpacano. "Cultivated herb." July 28, 1966. *Martin et Lau-Cam* 1116.

According to the collectors, this herb, known in Peru as *pai-checara*, is medicinally used: the leaves are mixed with a small amount of aquardiente and applied to the temples for headache and a decoction of the leaves is drunk for "intestinal irritations."

CHRYSOBALANACEAE

Hirtella bullata *Bentham* in Hooker, Journ. Bot. 2 (1840) 216.

COLOMBIA: Comisaría del Vaupés, Río Karurú. "Flowers white," April 12-15, 1953. *Schultes et Cabrera* 19161.

The bark is prepared in a tea to treat sore throats due to prolonged "gripa."

In the Amazon of Brazil the bark of *Hirtella bracteata* Mart. et Zucc. is considered to be astringent (LeCointe: loc. cit., 130).

Hirtella guainiae *Spruce ex Hooker fil.* in Martius, Fl. Bras. 14, pt. 2 (1867) 31.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Javareté. "Low bush. Flowers pale pink." May 14-24, 1953. *Schultes et Cabrera* 19421.

A tea of the bark is recommended as a gargle for sore throat.

Hirtella racemosa *Lamarck* var. **hexandra** (*Willd. ex R. et S.*) *Prance* in Fl. Neotrop., no. 9 (1972) 328.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, between Mitú and Javareté, Arara Cachivera. "Low bush. Fruit dark red." May 14-24, 1953. *Schultes et Cabrera* 19398.

The bark and leaves of this bush are prepared in a tea which is taken as hot as possible "to open the throat" in cases of extreme respiratory ailments.

Licania apetala (*E. Mey.*) *Fritsch* in Ann. K.K. Naturh. Hofmus. Wien 4 (1889) 54.

COLOMBIA: Comisaría del Vaupés, Río Kananarí, Cerro Isibukuri. Tree. Diameter 15 in.; height 75 feet. August 3, 1951. *Schultes et Cabrera* 13276.

In Spanish, this tree is called *cabio*. The Puinave name is *wan-choó*; Kabuyarí, *ká-ve*; Kuripako, *ká-ve*; Taiwano, *khá-mwa*.

The bark is burned and the ashes are mixed with clay to make strong ceramic pots.

Licania heteromorpha *Benth* var. **glabra** (*Mart. ex Hook. fil.*) *Prance* in Fl. Neotrop., no. 9 (1972) 108.

COLOMBIA: Comisaría del Vaupés, Río Kananarí. August 6, 1951. *Schultes et Cabrera* 13416.—Río Vaupés, Mitú and vicinity. "Fruit brown; large tree." September 27–October 20, 1966. *Schultes, Raffauf et Soejarto* 24198.

The leaves and fruits are slightly alkaloid-positive with a Dragendorff spot test.

LEGUMINOSAE

Anadenanthera peregrina (*L.*) *Spegazzini* in Physis 9 (1923) 313.

In the Río Negro area of Brazil, this tree, the seeds of which are the source of an hallucinogenic snuff called paricá or yopo, is

to-day extremely rare. The tree grows most appropriately in open grasslands or savannahs, never in heavy forests. The species is now very common in the upper Orinoco area and in the savannahs of the Río Branco. It is rarely seen nowadays in the Río Negro, where apparently it was once frequently cultivated.

Over a century ago, Spruce reported: "I first gathered specimens of the Paricá (or Niopo) tree in 1850 in Santarem at the junction of the Tapajoz and Amazon where it had apparently been planted. In the following year, I gathered it on the little river Jauauarí—one of the lower tributaries of the Río Negro—where it was certainly wild." (A.R. Wallace [Ed.]: *Notes of a Botanist on the Amazon and Andes* 2 (1908) 426).

In my several years in the Río Negro basin, I never encountered *Anadenanthera peregrina*, but Dr. Ghilleen T. Prance located trees near the mouth of the Rio Une, a small affluent of the Río Negro. Dr. Prance writes: "These trees are in a field beside the river where they grow in a group. They are regularly visited each year by a group of Yanomamo who harvest them."

It is interesting that certain plants, common enough apparently along the Río Negro a century ago, are now nearly non-existent in the area. Another example is the guaraná plant, *Paullinia Cupana*, which, in Spruce's time, was apparently frequent all along the Río Negro—obviously planted. To-day, it is hardly ever seen along this river and, if so, is planted only as a curiosity.

Mimosa pudica *Linnaeus*, Sp. Pl. (1753) 518.

ECUADOR: Provincia Patata, Río Chicó, affluent of Río Pastaza, Village of Río Chicó. "White flower." August 1979. *Shemluck et Ness* 211.

The Kechwa name for this plant in Ecuador is *punyo-sisa*. According to the collectors, the leaves are put in pillows for the elderly and children who cannot sleep.

Parkia oppositifolia *Spruce ex Benth* in Trans. Linn. Soc. 30 (1875) 363.

BRAZIL: Estado do Amazonas, basin of Río Negro, Río Ineiuxí, Makú Indian village 300 km. above mouth. "Tree, 10 m. x 30 cm. diameter." October 24, 1971. *Prance, Maas et al.* 15594.

According to the collectors, the bark of the trunk is scraped and added to water to prepare a drink for curing dysentery. The Makú name of the tree is *piradábi*; in Portuguese, it is called *arapari*.

***Spartium junceum* Linnaeus, Sp. Pl. (1753) 708.**

ECUADOR: Provincia Azuay, along Río Tarqui, near 8,300-9,000 feet alt. "Erect shrubs to 3 m. Stems bright green. Floral parts bright yellow. An exceeding common escape on almost all dry slopes in the Cuenca area." March 7, 1945. *Camp E-205*.—Provincia Cañar, near village of San Marcos, northeast of Azogues. "Shrubs to 1.5 m. Flowers yellow. The flowers are used to adorn the Mother of God." April 1, 1945. *Camp E-2501*.

This introduced shrub, known in highland Ecuador as *retama*, is believed to have abortifacient properties. According to Camp, "an infusion of the roots is taken by women who do not want children." The dried flowers are also "smoked as a cigarette for asthma."

GERANIACEAE

***Geranium rhomboidale* Moore in Gentes Herb. 8, fasc. 3 (1951) 255, t. 103.**

COLOMBIA: Comisaría del Putumayo, Páramo de San Antonio between La Laguna de La Cocha and the Valley of Sibundoy. Alt. 3000-3200 m. February 13, 1942. *Schultes* 3238.—Road from Sibundoy to Pasto, between La María and Páramo de San Antonio. Alt. 2900-3180 m. June 1, 1946. *Schultes et Villarreal* 7825.

In the Sibundoy Valley, the crushed leaves of *Geranium rhomboidale* are considered to have styptic properties.

DICHAPETALACEAE

***Stephanopodium peruvianum* Poeppig et Endlicher, Nov. Gen. et Sp. 3 (1843) 40.**

COLOMBIA: Comisaría del Amazonas, Río Apaporis, Soratama. "Small tree. Fruit green." September 28, 1951. *Schultes et Cabrera* 14157.—Comisaría del Putumayo. *Plowman* 2042.

In the Colombian Putumayo, this plant is known as *calentura-caspi* ("fever-tree") or *chiric-caspi* (the same meaning). It is employed as a febrifuge.

Nothing is known of the chemical constituents of this genus, but some African species of *Dichapetalum* are reputedly toxic (Hegnauer: loc. cit. 4 (1966) 15).

EUPHORBIACEAE

***Hevea guianensis* Aublet**, Hist. Pl. Guian. Fr. 2 (1775) 871.

PERU: Departamento de Loreto, Provincia Maynas, Río Ampiyacu, Pucu Urquillo and vicinity. "Tree 60 feet tall, 10 inches in diameter. Bark smooth, tan-grey. Latex cream." April 28, 1977. *Plowman, Schultes et Tovar* 7125 (Alpha Helix Amazon Expedition 1976-77, Phase VII).

A field chemical examination revealed that this species of *Hevea* is devoid of alkaloids.

***Hieronyma colombiana* Cuatrecasas** in Rev. Acad. Col. Cienc. 8 (1951) 298.

COLOMBIA: Comisaría del Putumayo, Páramo de San Antonio, 3000-3200 m. "Small tree. Fruit edible, for making wine also." February 13, 1942. *Schultes* 3253.

The Kamsá Indians of Sibundoy, who call this plant *ssna-hú-sha*, make an infusion of the bark and leaves to cure "chandra," a skin eruption.

CELASTRACEAE

***Maytenus laevis* Reissek** in Martius, Fl. Bras. 11, pt. 1 (1861) 19.

COLOMBIA: Comisaría del Vaupés, Río Kubiyú, Savannah Kañendá. "Small tree. Flowers white." September 27-October 20, 1966. *Schultes, Raffauf et Soejarto* 24266.

This species is the famous *chuchuhuasca* of the Peruvian Amazon. The bark is believed to be a strong stimulant when taken in infusion.

CYRILLACEAE

***Cyrilla racemiflora* Linnaeus**, Mant. 1 (1767) 50.

COLOMBIA: Comisaría del Vaupés, Río Kuduyarí, Cerro Yapobodá. October 28, 1951. *Schultes et Cabrera* 14472.—Río Kananarí, Cerro Isibukuri. "Tree 10 feet tall." January 23-25, 1952. *Schultes et Cabrera* 15034.—Río Kubiyú, Savannah

Kañendá. "Tree 20 ft. tall. Flowers whitish." September 27-October 20, 1966. *Schultes, Raffauf et Soejarto 24263*.

BRAZIL: Estado do Amazonas, Rio Negro basin. Middle course of Rio Curicuriarí. January 1948. *Schultes et López 9718*.

This plant is alkaloid negative with a Dragendorff spot test.

The Indians of the Río Curicuriarí in Brazil crush the leaves of *Cyrilla racemiflora* and vigorously rubbed the mass on sprains and muscular pains for relief.

ICACINACEAE

Poraqueiba sericea *Tulasne*, in *Ann. Sci. Nat.*, ser. 3, 11 (1849) 172.

COLOMBIA: Comisaría del Vaupés, Río Piraparaná, Caño Teemeeña. "Small tree. Cultivated. Flowers yellow." September 9, 1952. *Schultes et Cabrera 17319*.—Río Vaupés, between Mitú and Javareté, Tipiaca. May 14-24, 1953. *Schultes et Cabrera 19278*.—Comisaría del Amazonas, Río Karaparaná, El Encanto. "Flowers white-yellow. Small cultivated tree. Fruit ripens yellow. Pulp thin, yellow." March 20–April 2, 1970. *Schultes 26084*.—Comisaría del Amazonas, Río Amazonas, Leticia. "Cultivated tree. 25 feet tall. Flowers yellow." August 29–September 12, 1966. *Schultes, Raffauf et Soejarto 24012*.—Same locality and date. *Schultes, Raffauf et Soejarto 24027*.—Same locality and date. "Tree 40 feet. Flowers whitish yellow." *Schultes, Raffauf et Soejarto 24082*.

PERU: Departamento de Loreto, Río Nanay, Mishana. February 19, 1969. *Plowman 2491*.

All Dragendorff spot tests on this plant proved to be alkaloid-negative.

The tree and its fruit are widely known in Colombia and Peru by the Brazilian name *umarí*. In the Colombian Amazon, it is called *wá-mo* by the Barasanas; *how* by the Puinaves; *mwá-mo* by the Gwananos; *ma-mo-hoý-ye* by the Kubeos; and *né-ka-soo* (fruit) and *ne-ka-na* (tree) by the Witotos.

In Peru, the plant is an ingredient in a contraceptive medicine, according to *Plowman 2491*.

SAPINDACEAE

Cupania scrobiculata *Richard* in *Acta Soc. Hist. Nat. Paris* 1 (1792) 109.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. "Shrub. Fruit red." September 27–October 20, 1966. *Schultes, Raffauf et Soejarto 24298*.

This plant is alkaloid negative with a Dragendorff spot test.

TILIACEAE

Lueheopsis Schultesii *Cuatrecasas* in Bot. Mus. Leafl., Harvard Univ. 15 (1951) 49, t. 17.

COLOMBIA: Comisaría del Amazonas, Río Igaraparaná, La Chorrera and vicinity. June 4-10, 1942. *Schultes* 3925.—Same locality and date. *Schultes* 2972.

The Witotos call this beautiful bush *mo-sé-go-na*. The bark is boiled, and the resulting astringent tea is valued by the Witotos as a remedy for sore throat. The seeds are said to be roasted and eaten.

Triumfetta althaeoides *Lamarck*, *Encycl.* 3 (1791) 420.

PERU: Departamento de Loreto, region of Iquitos. "Small shrub, 1 m.; flowers pale orange; stamens orange; fruit green turning brown." July 26, 1966. *Martin et Lau-Cam* 1160.

According to the collectors, this shrub is known as *caballusa* and is "used for uterine complaints."

MALVACEAE

Malachra rudis *Bentham*, *Pl. Hartweg.* (1845) 164.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, on summit of Cerro Mitú. "Low shrub, 3 feet." September 27–October 20, 1966. *Schultes, Raffauf et Soejarto* 24342.

A spot test for alkaloids with Dragendorff reagent was negative for this plant.

Sida cordifolia *Linnaeus*, *Sp. Pl.* (1753) 684.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, Leticia. "Bush in secondary growth. Flowers pink." August 29–September 12, 1966. *Schultes, Raffauf et Soejarto* 24085.

This plant gave an alkaloid-negative reaction to a Dragendorff spot test.

BOMBACACEAE

Bombax coriaceum *Martius*, *Nov. Gen. et Sp.* 1 (1826) 93.

COLOMBIA: Comisaría del Vaupés, Río Karurú, Mesa de Yambí, Savannah Goo-ran-hoo-dá. "Flowers white. Bush 2 1/2 feet tall." April 15-16, 1953.

Schultes et Cabrera 19158.—Río Kubiyú, Savannah Kañendá. "Bush 3 feet." September 27–October 20, 1966. *Schultes, Raffauf et Soejarto* 24280.

Bombax coriaceum gave an alkaloid-negative reaction to a spot test with Dragendorff reagent.

Bombax globosum *Aublet*, Hist. Pl. Guian. Fr. 2 (1775) 701, t. 281.

COLOMBIA: Comisaría del Vaupés, Río Kananarí, Cerro Isibukurí. "Large tree, 60-70 feet tall. Flowers yellow-white, petals yellow towards tip." September 29, 1951. *Schultes et Cabrera* 14700.

The "wool" from the fruit is mixed with resins or latexes and painted on wounds or ulcers as a kind of protective "skin." The Taiwanos call the tree *ka-ne-weé-re*.

Bombax Munguba *Martius*, Nov. Gen. et Sp. 1 (1826) 93, t. 99.

PERU: Departamento de Loreto, region of Iquitos, Moyuy. "Tree 25 m. tall; fruit red." July 26, 1966. *Martin et Lau-Cam* 1135.

According to the collectors, a decoction of this plant, locally known as *punga*, *punga blanca* or *huina caspi*, is taken for snake bite.

Matisia cordata *Humboldt et Bonpland*, Pl. Aequin. 1 (1805) 9, t. 2.

COLOMBIA: Comisaría del Amazonas, Río Amazonas near mouth of Río Loretoyacu. "Tree 60 feet tall. Flowers yellow." September 13–15, 1966. *Schultes, Raffauf et Soejarto* 24111.—Same locality and date. *Schultes, Raffauf et Soejarto* 24117.

The results of a spot test for alkaloids with Dragendorff reagent gave the following results: bark doubtful; leaves positive.

Septotheca Tessmannii *Ulbrich* Notizbl. 9 (1924) 129, fig. 3.

COLOMBIA: Comisaría del Amazonas, Río Boiauassú, Trapecio Amazónico. "Enormous tree with buttress roots. Flowers yellow-green, mucilaginous." November 1945. *Schultes* 6788.—Same locality. "Sepals green-yellow. Tree 80 feet tall with great buttresses. Very common." October 27, 1946. *Schultes* 8612.

This tree is called *zapoterana* or *zapotilla* in the Trapecio Amazónico. It is a rare element of the flora of this area.

STERCULIACEAE

***Sterculia roseiflora* Ducke** in Arch. Inst. Bio. Veg. Río Janeiro 2 (1935) 57.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Soratama. "Large tree. Flowers fragrant, reddish purple. On high land." September 28, 1951. *Schultes et Cabrera* 14143.

This tree is locally known as *turí*. The stems are boiled in water to make an unusually strong diuretic tea.

CARYOCARACEAE

***Caryocar glabrum* (Aubl.) Persoon**, Syn. 2 (1806) 84.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Soratama. "Enormous tree. Flowers yellow; stamens bright red." September 26, 1951. *Schultes et Cabrera* 14139.

The Puinave name for this treelet is *haw*. The seeds are used, uncooked, as a food. They are also considered to be medicinally useful in what appears to be an attempt to regulate menstruation.

GUTTIFERAE

***Lorostemon colombianum* Maguire ex R.E. Schultes** in Bot. Mus. Leaflet, Harvard Univ. 18 (1958) 159.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Jinogojé (at mouth of Río Piraparaná) and vicinity. "Tree 6 m. high. Flowers outside red, greenish at base and red-spotted above; calyx green. Latex yellow." September 25, 1952. *Schultes et Cabrera* 17619.—Río Ricapuyá (tributary of Río Apaporis below mouth of Río Piraparaná). "Small tree 6 m. tall. Latex yellow. Flowers red. September 25-26, 1952. *Schultes et Cabrera* 17638.

The Puinave call this small tree *boo-kwañ*, the Makuna know it as *chee-kãñ-hoo*; and the Makú of the Río Piraparaná refer to it as *tee-ran-keñ*.

***Lorostemon stipitatum* Maguire** in Mem. N.Y. Bot. Gard. 10 (1963) 130.

COLOMBIA: Comisaría del Vaupés, Río Piraparaná, lower course. "Medium-sized tree. Sparse white latex." March 9, 1952. *Schultes et Cabrera* 15910.

The Makuna Indians of the Río Piraparaná know this tree as *o-hé-wo-bök*.

Moronobea coccinea Aublet, Hist. Pl. Guian. Fr. (1775) 788, t. 33
excl. figs a-f.

COLOMBIA: Comisaría del Amazonas, Río Caquetá, La Pedrera and vicinity, Quebrada Tonina. "On high land. Large tree. October 5, 1952. *Schultes et Cabrera* 17728.—Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. "Columnar tree 1 1/2 feet in diameter. Height 90 feet. Crown sparse, all at top. Bark thick, soft, roughish, brown outside, sandy inside. Latex abundant, yellow. Wood yellowish white. Flowers rose-red." September 8, 1951. *Schultes et Cabrera* 13960.

In the Vaupés, the Tukano name of this tree is *woo-há-pee-ka-ne*, and the Taiwono call it *go-hé*. The Kabuyarí in La Pedrera know it as *maú-pa*.

Moronobea riparia (Spr.) Planchon et Triana var. **fimbrillata**
R.E. Schultes in Bot. Mus. Leaf., Harvard Univ. 17 (1955) 15.

COLOMBIA: Comisaría del Vaupés, Río Guainía, Puerto Colombia. "Flowers greenish white. Stigmas and pistil bright green. Latex bright yellow. Bark thick, scaly, dark-brown, corky. Tree storeyed. Height 40 feet. Diameter 14 inches." October 31-November 2, 1952. *Schultes, Baker et Cabrera* 18206.—Same locality and date. *Schultes, Baker et Cabrera* 18210.

The Puinave name of this beautiful variety is *möw*; the Kuri-pako call it *ma-rá-ke*. In Spanish, the tree is known by the general term *breo* and in Lingua Geral as *i-raí-kee*.

Platonia insignis Martius var. **formosa** *R.E. Schultes* in Bot. Mus. Leaf., Harvard Univ. 17 (1955) 18.

COLOMBIA: Comisaría del Vaupés, Río Piraparaná, Raudal de La Olla. "Tree 25 m. Columnar. Bark grey-brown, rough with scales. Flowers salmon-pink, petals curl out at edge. Receptacle thick, same colour. Latex cream-coloured. On rocks at falls. Crown not large." August 28, 1952. *Schultes et Cabrera* 17062.—Río Vaupés, mouth of Río Kerarí. "Flowers salmon-pink. Columnar tree, diameter 28 inches. Latex resinous, yellow. Anthers yellow. Bark shaggy, rich brown. Wood whitish. Latex used to light houses. Just above high water line." May 14-15, 1953. *Schultes et Cabrera* 19342.

The Tanimuka name of this tree is *oo-ká-o-ree-ke*; the Yukuna call it *ke-pé-la* (*Schultes et Cabrera* 17062). Amongst the Desana of the Río Vaupés, it is known as *ko-me-peé-go-re*, while the neighbouring Tukano call it *ko-paí-yo-ree*.

The seeds of *Platonia insignis* have an oil content of 0.5% (Hegnauer: loc. cit., 4 (1966) 221).

***Symphonia globulifera* Linnaeus fil., Suppl. (1781) 302.**

COLOMBIA: Comisaría del Vaupés, Río Piraparaná, Caño Oo-moó-ña. September 3, 1952. *Schultes et Cabrera* 17163.

The Makuna Indians of the Río Piraparaná burn the bark and apply the ashes to wounds. A similar use in the Río Apaporis has been reported for this species (Schultes: Bot. Mus. Leaflet, Harvard Univ. 26 (1978) 234).

POTALIACEAE

***Potalia Amara* Aublet, Hist. Pl. Guian. Fr. (1773) 394, t. 151.**

PERU: Departamento de Loreto, Provincia Maynes, Río Yaguasyacu, affluent of Río Ampiyacu, Brillo Nuevo and vicinity. "Shrub 2 m. tall in forest. name: *okaji kahpuu* (Bora)." April 12, 1977. *Plowman, Schultes et Tovar* 6803 (Alpha Helix Amazon Expedition 1967-1977, Phase VII).

The Boras, who know this plant as *okaji-kahpuu*, chop fresh leaves in water and take it internally for snakebite or against any poisonous animal (raya, isula). It is said to calm the body and eliminate pain.

Notwithstanding the extensive medicinal use of *Potalia Amara* throughout the Amazon, the chemistry of this genus is, according to Gibbs, "too poorly known to justify discussion" (Gibbs: *Chemotaxonomy of Flowering Plants*, McGill-Queen's, University Press, Montreal 3 (1974) 1333-1334).

APOCYNACEAE

***Rhigospira quadrangularis* (Muell.-Arg.) Miers, Apocyn. S. Am. (1878) 68.**

COLOMBIA: Comisaría del Vaupés, Río Macaya. "Slender tree, 50 feet tall. Very abundant thick, white latex similar to but not that of juansoco. Bark thin, smooth with black-grey patches." April 1-7, 1943. *Schultes* 5357.

According to Zarucchi, this collection, reported as *Neocouma Duckei* (Schultes in Acta Bot. Neerl. 15 (1966) 182), is now correctly identified as *Rhigospira quadrangularis*. It is used, under the local name *caimo morado*, to adulterate the latex of *Couma macrocarpa* Barb.-Rodr. in the upper Río Apaporis basin of Colombia. The tree is called *palo de leche* or *caimo morado* in the region.

Tabernaemontana Sananho Ruiz & Pavón, Fl. Peruv. 2 (1799) 22, t. 144.

PERU: Departamento de Loreto, Maucallacta, Río Paranapura. "Tree 3–4 meters. Flowers greyish white. *Yacu Zanango*." January 1935. G. Klug 3942.

COLOMBIA: Comisaría del Amazonas, Río Loretoyacu, near Puerto Nariño, around Laguna Dolfus. "N.v.-sanango. Hierba de 1 m. hasta arbustiva de 3 m. Flores blancos." August 19, 1964. Fernández-Pérez 6867.

This species proves to be highly positive with a spot test for alkaloids with Dragendorff reagent.

ASCLEPIADACEAE

Metelea palustris Aublet, Hist. Pl. Guian. Fr. (1775) 278, t. 109, f.l.

ECUADOR: Provincia Pastaza, Río Chicó, Village of Río Chicó and vicinity. August 1979. Shemluck et Ness 190.

The leaves are cooked and eaten and are said to turn the teeth red. There is apparently no utilitarian purpose involved in eating the leaves.

The chemistry of this genus is apparently unknown.

RUBIACEAE

Duroia Linnaeus fil.

This tropical American genus of some 20 species belongs to that portion of the Rubiaceae—the Gardeniinae—which is not particularly noted for alkaloids with the exception of three genera: *Randia*, *Basanacantha* and *Hamelia*. The section has, however, not been thoroughly investigated. In an earlier paper, I indicated the native uses of a number of species of *Duroia* and noted that "...reports from natives affirming the poisonous properties of the seeds of several species...call attention once again to the need for phytochemical studies guided by ethnobotanical observations." (Schultes in Bot. Mus. Leaflet, Harvard Univ. 22 (1969) 151–156).

Duroia hirsuta (P. et E.) K. Schumann in Martius, Fl. Bras. 6, pt. 6 (1889) 367.

COLOMBIA: Comisaría del Putumayo, Río Sucumbíos, Conejo and vicinity. April 2-5, 1940. *Schultes*

The Kofán Indian name of *Duroia hirsuta* in the Putumayo is *sha-ka-ker-ná-se*.

Duroia kotchubaeoides *Steyermark* in Mem. N.Y. Bot. Gard. 12 (1965) 201.

COLOMBIA: Comisaría del Vaupés, Río Guainía, Puerto Colombia and vicinity. "Small tree. Flowers white." October 31–November 2, 1952. *Schultes, Baker et Cabrera* 28111.

A Dragendorff spot test for this species is alkaloid negative. The seeds are said by the natives to be poisonous when eaten.

Duroia petiolaris (*Spr.*) *Hooker fil. ex K. Schumann* in Martius, Fl. Bras. 6, pt. 6 (1889) 364.

COLOMBIA: Comisaría del Amazonas, Trapecio Amazónico, Río Loretoyacu. October 1945. *Schultes* 6727.

The Tikuna Indians assert that the seeds of this species are dangerously toxic if ingested.

Durioa saccifera (*Mart.*) *Hooker fil. ex K. Schumann*, in Martius, Fl. Bras. 6, pt. 6 (1889) 362, t. 146, fig. 1.

COLOMBIA: Comisaría del Amazonas, Río Apaporis, Soratama and vicinity. March 26, 1952. *Schultes et Cabrera* 16063.

A spot test with Dragendorff reagent indicates that this collection is doubtfully alkaloidal. The seeds are said by the natives to be toxic if ingested.

SOLANACEAE

Solanum hypomalacophyllum *Bitter ex Pittier*, Man. Pl. Usual. Venez. (1926) 137.

The common name of this plant in Venezuela—*borrachera*—indicates that it is an intoxicant (Herbarium collection: *Gehringer* 2).

It is possible that this species of *Solanum* contains tropane alkaloids so widespread in the family, but an analysis has apparently not been made.

CAMPANULACEAE

Centropogon ferrugineus (*L. fil.*) Gleason in Bull. Torr. Bot. Club 52 (1925) 11.

COLOMBIA: Comisaría del Putumayo, Páramo de San Antonio, March 1953. Schultes s.n.

In Sibundoy, a bitter tea of the leaves of this plant is valued in treating dysentery.

Chemical studies apparently have not yet been carried out on *Centropogon*.